[progressbar=foot, numbering=fraction, block=fill]metropolis [BoldFont=Fira Sans SemiBold]Fira Sans Book Fira Mono nipun-blueRGB45, 85, 135 nipun-lightblueRGB100, 140, 180 nipun-grayRGB85, 85, 85 nipun-lightgrayRGB245, 245, 245 nipun-greenRGB60, 120, 60 nipunorangeRGB200, 100, 50 nipun-redRGB180, 50, 50 nipun-whiteRGB255, 255, 255

background canvasbg=nipun-white normal textfg=nipun-gray

titlefg=nipun-blue frametitlefg=nipun-blue, bg=nipun-lightgray subtitlefg=nipunlightblue authorfg=nipun-gray datefg=nipun-gray institutefg=nipun-gray

structurefg=nipun-blue section in tocfg=nipun-blue subsection in tocfg=nipunlightblue

block titlefg=nipun-white, bg=nipun-blue block bodyfg=nipun-gray, bg=nipunlightgray block title alertedfg=nipun-white, bg=nipun-red block body alertedfg=nipungray, bg=nipun-lightgray block title examplefg=nipun-white, bg=nipun-green block body examplefg=nipun-gray, bg=nipun-lightgray

progress barfg=nipun-blue, bg=nipun-lightgray progress bar in head/footfg=nipunblue, bg=nipun-lightgray

itemize itemfg=nipun-blue itemize subitemfg=nipun-lightblue enumerate itemfg=nipun-blue

popquizbox[1] colback=nipun-lightblue!10, colframe=nipun-blue, boxrule=2pt, arc=3pt, left=8pt, right=8pt, top=8pt, bottom=8pt, title= Quick Quiz 1, fonttitle=, coltitle=nipun-white, colbacktitle=nipun-blue, enhanced, attach boxed title to top left=xshift=0pt, yshift=-2pt, boxed title style=arc=3pt, boxrule=0pt

definitionbox[1] colback=nipun-green!8, colframe=nipun-green, boxrule=1.5pt, arc=2pt, left=6pt, right=6pt, top=6pt, bottom=6pt, title= **Definition: 1**, fonttitle=, coltitle=nipun-white, colbacktitle=nipun-green

examplebox[1] colback=nipun-orange!8, colframe=nipun-orange, boxrule=1.5pt, arc=2pt, left=6pt, right=6pt, top=6pt, bottom=6pt, title= **Example: 1**, fonttitle=, coltitle=nipun-white, colbacktitle=nipun-orange

keypointsbox colback=nipun-blue!8, colframe=nipun-blue, boxrule=1.5pt, arc=2pt, left=6pt, right=6pt, top=6pt, bottom=6pt, title= **Key Points**, fonttitle=, coltitle=nipun-white, colbacktitle=nipun-blue

alertbox[1] colback=nipun-red!8, colframe=nipun-red, boxrule=1.5pt, arc=2pt, left=6pt, right=6pt, top=6pt, bottom=6pt, title= **Important:** 1, fonttitle=, coltitle=nipun-white, colbacktitle=nipun-red

codebox[1] colback=nipun-gray!5, colframe=nipun-gray, boxrule=1pt, arc=1pt, left=4pt, right=4pt, top=4pt, bottom=4pt, title=1, fonttitle=, coltitle=nipun-white, colbacktitle=nipun-gray

itemize/enumerate body begin itemize/enumerate body end

frametitle[default][left,leftskip=0pt] frametitle

footline[frame number] page number in head/footfg=nipun-gray navigation symbols

title page

- 4. Suppose I want to put a hard constraint for linear regression that all the coefficients should be positive. How can I do that?
- 5. Prove that stochastic gradient is an unbiased estimator of the true gradient.
- 6. Prove that the expected size of bootstrapped sample 0.632 times the original sample size.